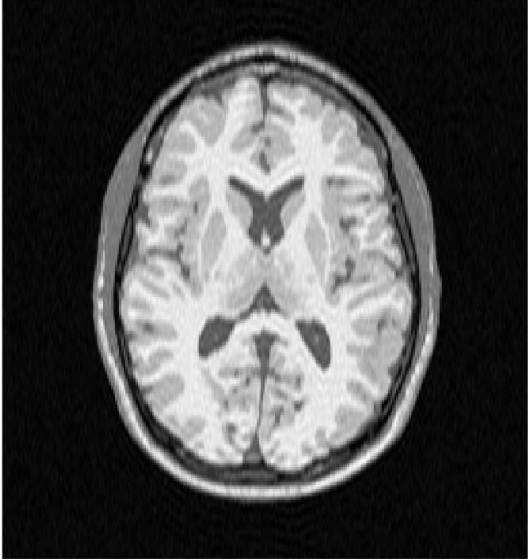


Assignment 3 : Q2: Report

Question 2 *Reconstruction of Magnetic Resonance Image of the Brain*

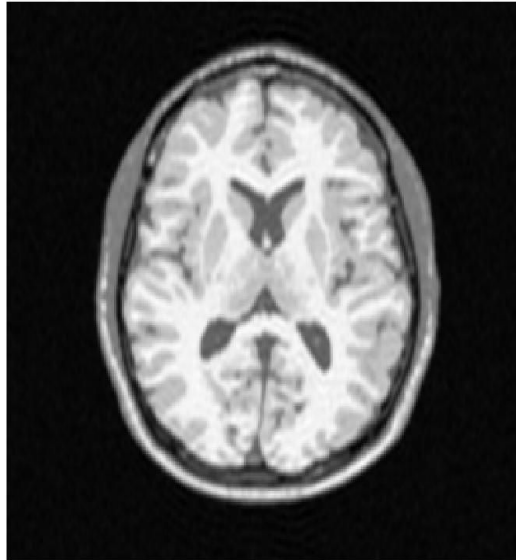
Part a

Corresponding images for Different Type of Prior

Description	Specific
Inverse Fourier Transform Image	<p>Inverse Fourier Kspace Data Image</p> 

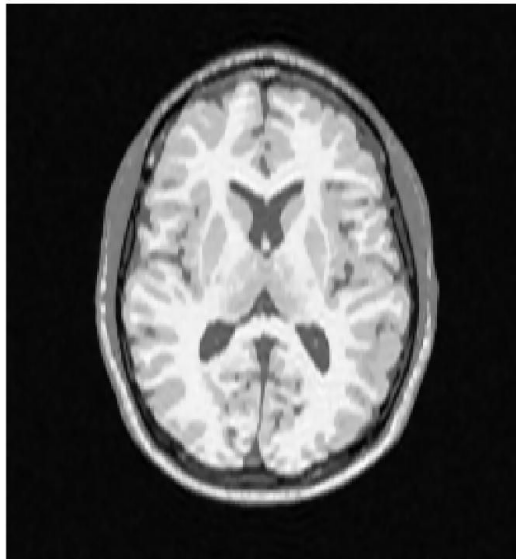
Quadratic Prior

Optimal Image of Reconstructed Brain for quadratic prior



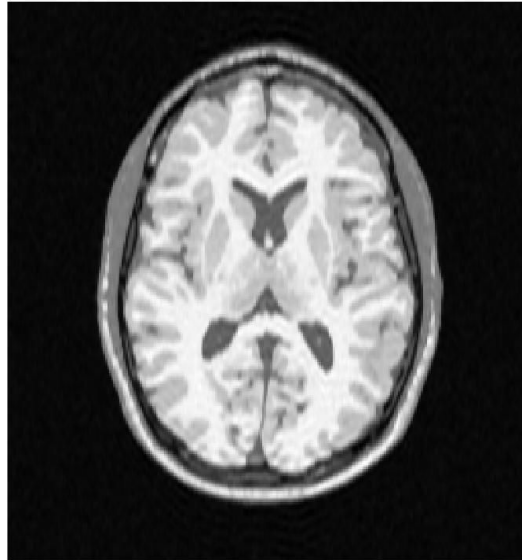
Huber Prior

Optimal Image of Reconstructed Brain for huber prior



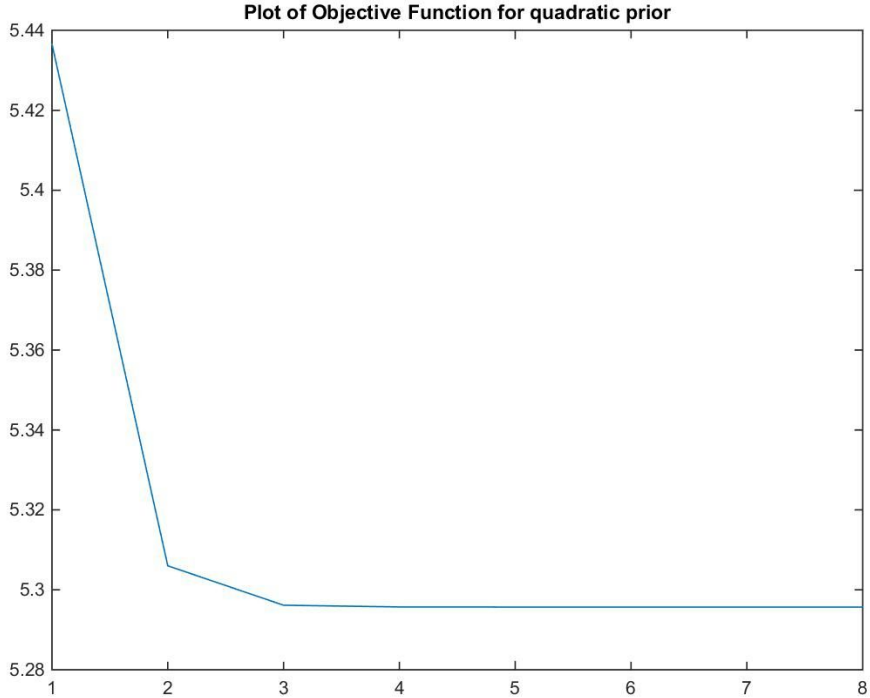
Discontinuity
adaptive function
Prior

Optimal Image of Reconstructed Brain for disc_adapt_tunction prior

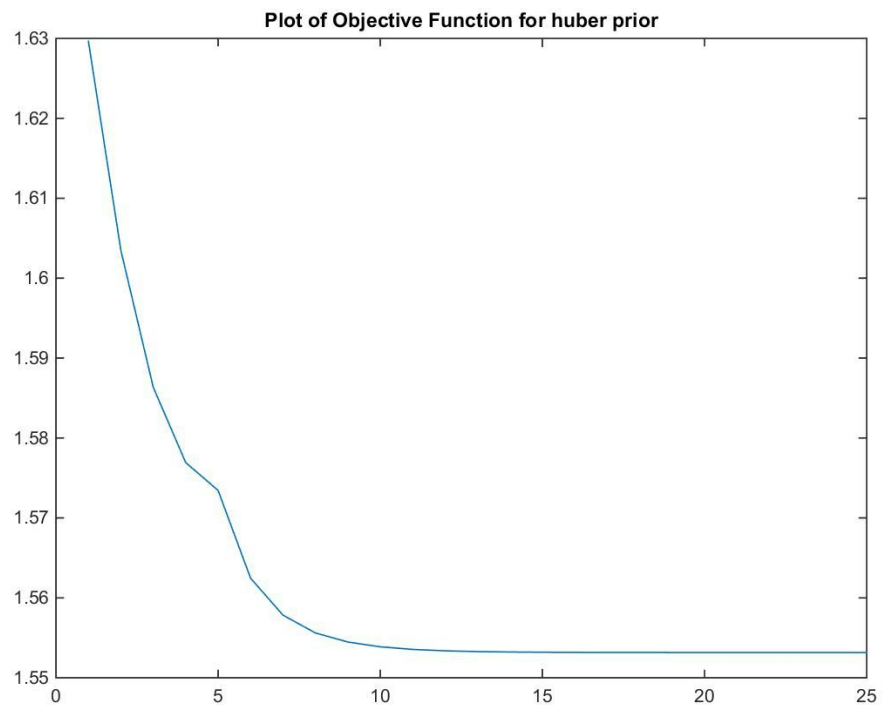


Part c

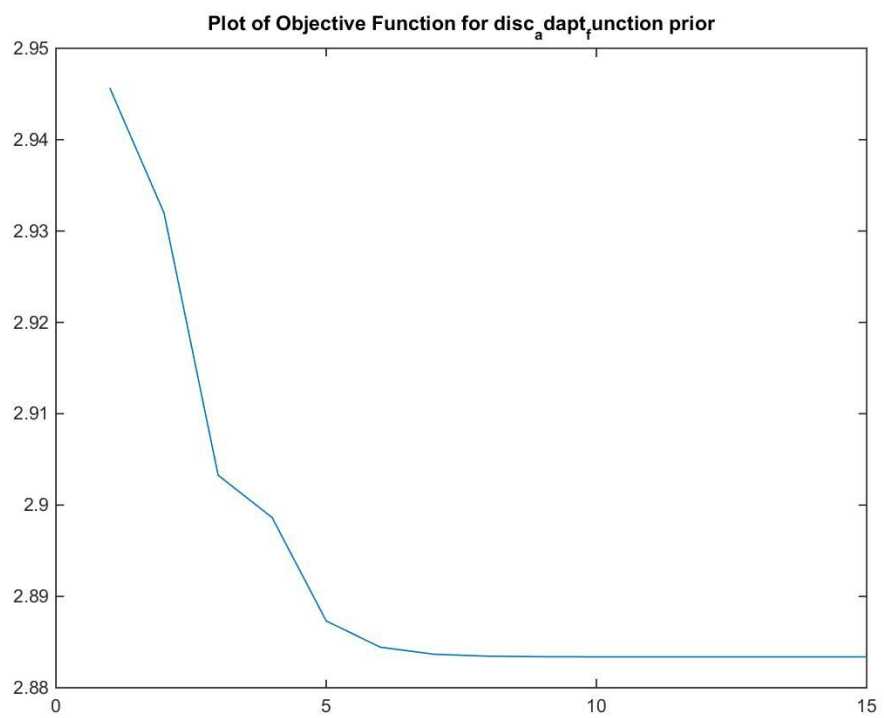
Corresponding plots of Objective Function for Different Type of Prior

Prior Type	Plot of log of Objective Function																		
Quadratic	 <p>The plot shows the log of the objective function for a quadratic prior. The x-axis represents iterations from 1 to 8, and the y-axis represents the log of the objective function from 5.28 to 5.44. The curve starts at approximately 5.435 at iteration 1, drops sharply to about 5.305 at iteration 2, and then levels off to approximately 5.295 by iteration 3, remaining constant thereafter.</p> <table border="1"><thead><tr><th>Iteration</th><th>Log of Objective Function</th></tr></thead><tbody><tr><td>1</td><td>5.435</td></tr><tr><td>2</td><td>5.305</td></tr><tr><td>3</td><td>5.295</td></tr><tr><td>4</td><td>5.295</td></tr><tr><td>5</td><td>5.295</td></tr><tr><td>6</td><td>5.295</td></tr><tr><td>7</td><td>5.295</td></tr><tr><td>8</td><td>5.295</td></tr></tbody></table>	Iteration	Log of Objective Function	1	5.435	2	5.305	3	5.295	4	5.295	5	5.295	6	5.295	7	5.295	8	5.295
Iteration	Log of Objective Function																		
1	5.435																		
2	5.305																		
3	5.295																		
4	5.295																		
5	5.295																		
6	5.295																		
7	5.295																		
8	5.295																		

Huber



Discontinuity-Adaptive Huber Prior



Disclaimer

All the images and corresponding plots in high resolution can be found in 'images' folder of question 2. Sub folder are made for different priors and you can locate optimal images and objective function plot.